

Pharnacia serratipes (Gray).

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Key words

Phasmida, *Pharnacia serratipes*, *Pharnacia acanthopus*, Rearing, Breeding, Foodplants.

Classification

This species was originally described, from a male, as *Cladoxerus serratipes* by Gray in 1835. The female was described as *Bacteria acanthopus* by Burmeister in 1838. There is sometimes some confusion over the date of Burmeister's description because, although his book was published in two volumes, each volume was originally issued in two parts; the first part of volume two, which includes the phasmids, was issued in 1838, the final part of volume two appeared in 1839. The genus *Pharnacia* was established by Stål in 1877.

The name *P. acanthopus* has nearly always been used for this species. This is probably because the only published key to the genus did not include *serratipes* (Redtenbacher, 1908: 449-450) and Redtenbacher was not aware that the two species were the same. In fact Kirby had previously published the synonym (Kirby, 1904: 359) but Redtenbacher, and everyone else, appears to have overlooked this. I have checked the type specimen of *P. serratipes* with my own cultured specimens and can confirm that the species in culture is *serratipes*. The cultured females agree with the published descriptions of *P. acanthopus* and with Redtenbacher's key, so Kirby was correct; *serratipes* and *acanthopus* are the same species.

This species has been mentioned in the literature on a number of occasions since it was first described, usually under the name *acanthopus*. As is often the case with species which were described a long time ago, there has been some confusion with the identification of this species by various authors. Several of the references refer to specimens which were subsequently found to be wrongly identified and have since been corrected or described as new species; these are placed in square brackets below.

Cladoxerus serratipes Gray, 1835: 42.

Phibalosoma serratipes, Westwood, 1859: 75.

Phibalosoma serratipes, Stål, 1875: 63.

[*Pharnacia serratipes*, Kirby, 1896: 448, 450. Misidentification - later changed by Kirby.]

Pharnacia serratipes, Kirby, 1904: 359.

Pharnacia serratipes, Redtenbacher, 1908: 455.

Bacteria acanthopus Burmeister, 1838: 565. [synonymised by Kirby, 1904: 359.]

[*Phasma (Cladoxerus) acanthopus*, de Haan, 1842: 131.]

Phibalosoma acanthopus, Westwood, 1859: 74.

[*Phryganistria acanthopus* (Haan), Stål, 1875: 63.]

[*Phibalosoma acanthopus*, (?), Wood-Mason, 1877: 161.]

Pharnacia acanthopus, Redtenbacher, 1908: 451, pl. 21.8.

Pharnacia acanthopus, Werner, 1934: 2.

Redtenbacher (1908: 451) considered that de Haan's specimens were possibly a different species, one which he had described as *Pharnacia biceps* [= *Tirachoides biceps* (Redtenbacher)]. He also thought that Westwood's examples of *P. serratipes* were in fact *P. acanthopus*, this is of course true, but Redtenbacher did not appear to consider the possibility that the male *serratipes* was the same species! Redtenbacher also considered Wood-Mason's to be a new species, *P. ingens* (1908: 453).

There have been several papers in recent years which mention this species in various experiments with captive material (Carlberg, 1988, 1989a, 1989b), and one discusses captive rearing (Herbert, 1988); all refer to the name *acanthopus*.

Until 1992, *P. serratipes* was regarded as the longest stick insect in the world, however this was based on Kirby's 1896 specimen which is not a specimen of *serratipes* (Bragg, in press). The maximum recorded body lengths for genuine *P. serratipes* are 243mm for the female (Redtenbacher, 1908: 454) and 175mm for the male (Gray, 1835: 42).

Range

This species was originally described from West Malaysia, and Redtenbacher (1908: 454) has since recorded it from West Malaysia, Singapore, Java, Sumatra, and Borneo, mostly based on specimens in his own collection. It is presumably commonly found in the wild in West Malaysia to judge by the quantity of deadstock that is sold in tourist shops in Singapore and Kuala Lumpur and the fact that some are imported into the UK.

Origin of Culture

This species was originally brought into culture by accident. Tony James imported ova that turned out to be *Pharmacia serratipes* mixed with some eggs of *Tirachoides cantori* from a dealer in the Cameron Highlands, Malaysia, in 1980. These became established and the culture was later designated as culture PSG 25, with the name *P. acanthopus* applied to it.

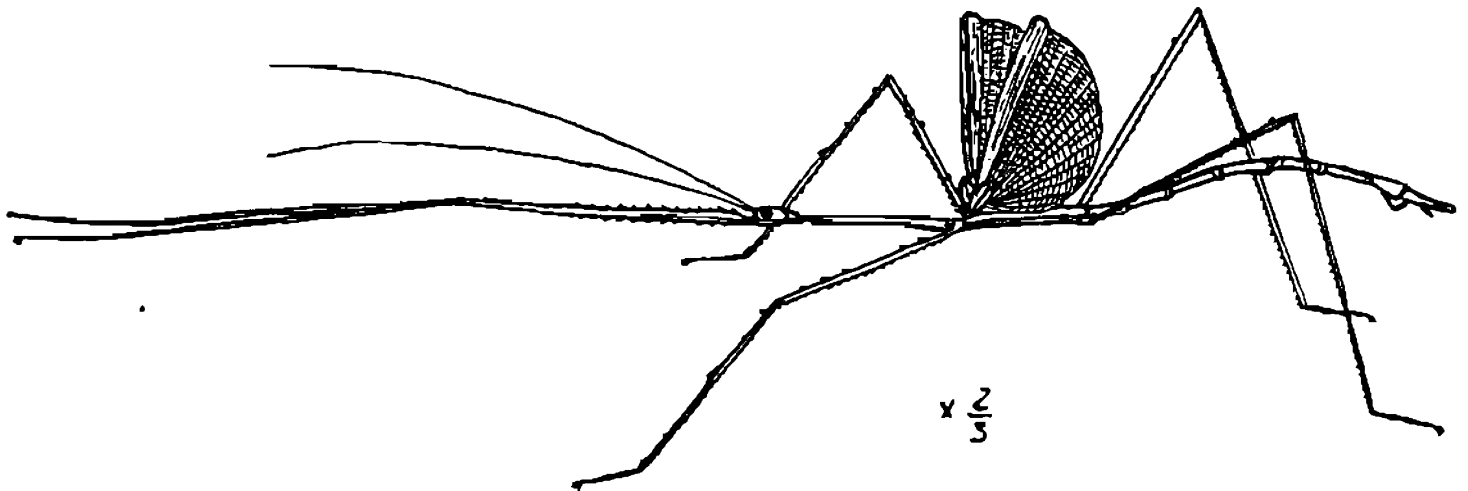
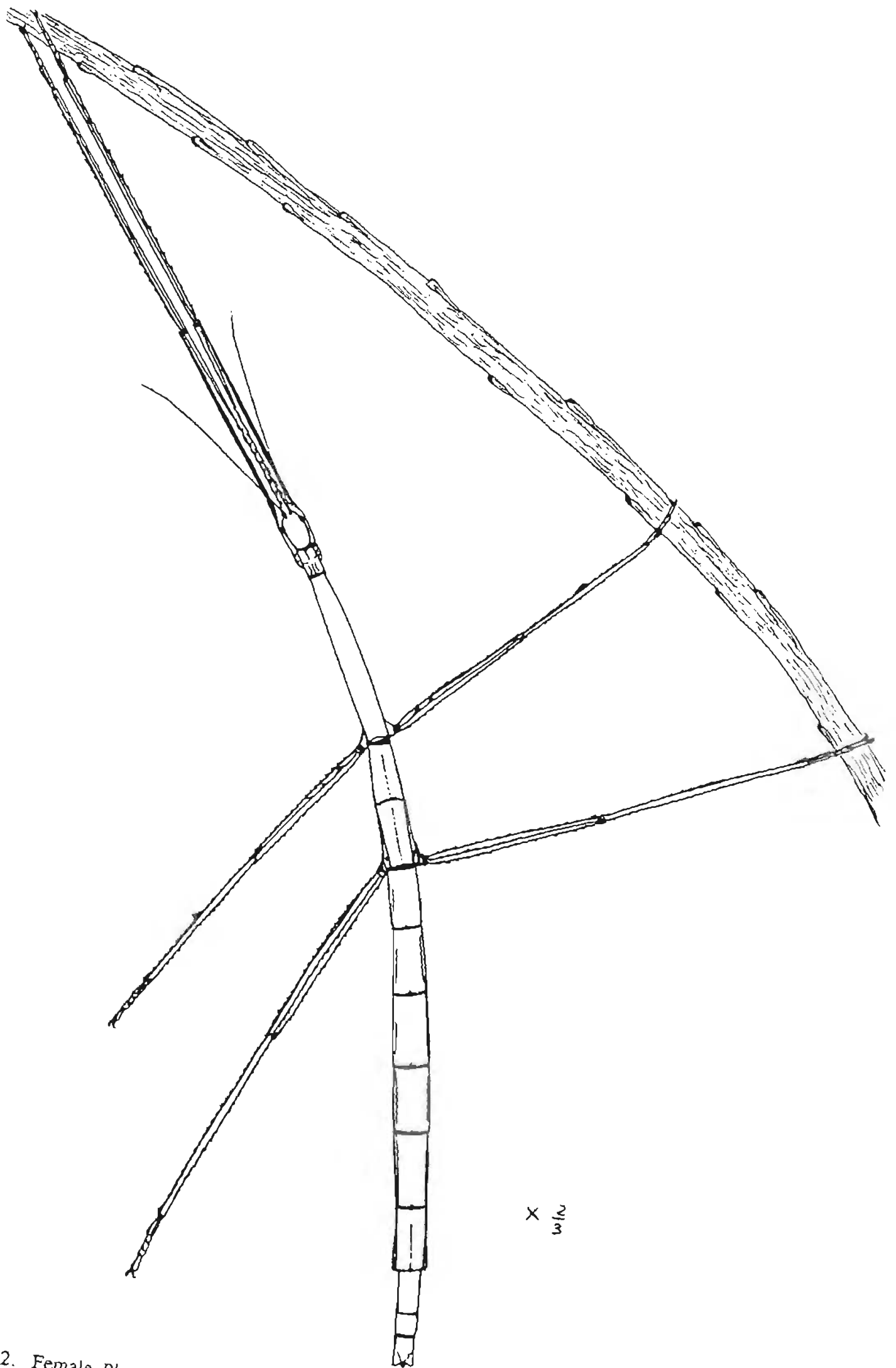


Figure 1. Male *Pharmacia serratipes*.

Description of the adults

This is a typical *Pharmacia* species, being very long and thin. It is one of the largest species to be kept in Europe.

The females in my culture reach a body length of 215-230mm with a maximum width of 15mm when in full egg production. The leg lengths are about: fore 170-185mm, mid 115-130mm, hind 145-160mm; the antennae are about 90mm long. The overall length from the front feet to the tip of the abdomen is about 410-425mm. Typical colouring is either light apple green, or brown, some may also be nearer to black. The green females are very rare, in my recent generation I have only had two green ones out of about forty adult females. Mel Herbert (1988: 9) reports that he had



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Figure 2. Female *Pharnacia serratipes*.

individuals with large white patches on the dorsal surface. The body is thin and spineless. The legs are all very long and thin and bear many serrations, especially on the top section of the front and mid femora. The mid femora bear two large, flattened thorns on their top section, which are variable in size and in some individuals totally absent. The first tarsal segment is always longer than the others and quite flattened. It is interesting to see that the mid tarsi in particular sometimes only have four segments, something which I have only seen in this species; this is probably due to the insects losing a leg when young and then regrowing the leg as they get older. The insides of the hind legs are purple in colour. The operculum is not very large and does not extend beyond the tip of the abdomen. The praepopercular organ forms a long, very noticeable spine near the base of the operculum. The cerci are small.

The males are much smaller and thinner than the females. In my culture they reach body lengths of 145-165mm with a width of about 3mm. The leg lengths are: fore 125-130mm, mid 80-90mm, hind 105-110mm; the antennae are a bit longer than those of the females at 90-100mm. This gives an overall length from the front feet to the tip of the abdomen of 300-320mm. The basic colour is greenish brown. On both

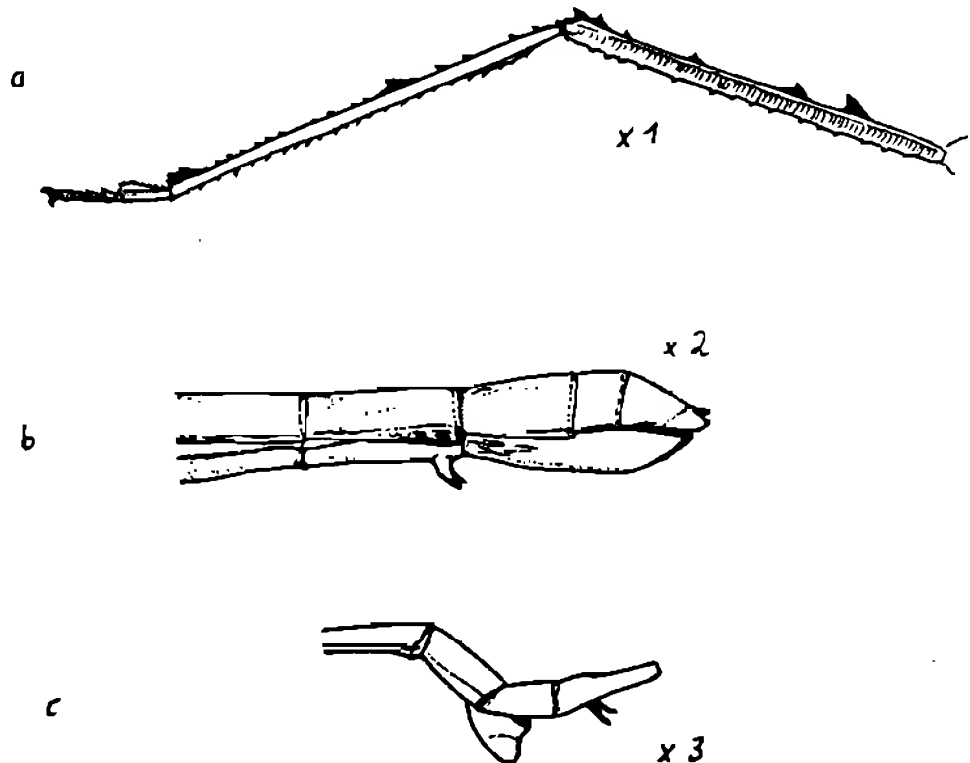


Figure 3. (a) ♀ midleg (b) ♀ operculum (c) ♂ operculum.

sides of the mesonotum is a blueish stripe, with a black stripe below it. The black stripe continues along the wing, the leading edge of the wing is white. The wings, as in most *Pharmacia* sp., are quite small and span about 75-80mm from one tip to the other. The colouring of the wings is a light, translucent grey-brown, with darker brown veins. The legs are all very long and thin and, like those of the female, bear many serrations. There is a large genital "bump" near the tip of the abdomen which ends in one pair of claspers and a pair of cerci (fig. 3c).

According to Mel Herbert, males have seven instars, and females nine. Both sexes are hardy and females live a year or longer as adults.

Eggs (Fig. 4)

The eggs are relatively small for such a large species as this, and it is sometimes difficult to believe that such long nymphs can hatch from such small eggs. They are about 5mm long, 4mm high and 2.5mm wide. The colour is a uniform light creamy-brown. They are slightly flattened, resulting in a quite long oval shaped operculum with pointed ends. In the centre of the brown operculum is a small dark brown, rounded capitulum on a short stalk. The micropylar plate looks like a

deformed heart and is greyish in colour.

In my opinion, the eggs are best incubated on damp peat, at a room temperature of 20-25°C; in these conditions, hatching takes about five months and I have had a 100% hatch rate. They tend to go mouldy easily so it may be a good idea to keep them only slightly damp, or in very airy conditions. I had some nymphs hatching with deformed legs but that is no problem after the first skin shed.

Mel Herbert reported that he had quite good results keeping the eggs on damp tissue paper. Females in my culture produce about three or four eggs per 24 hours.

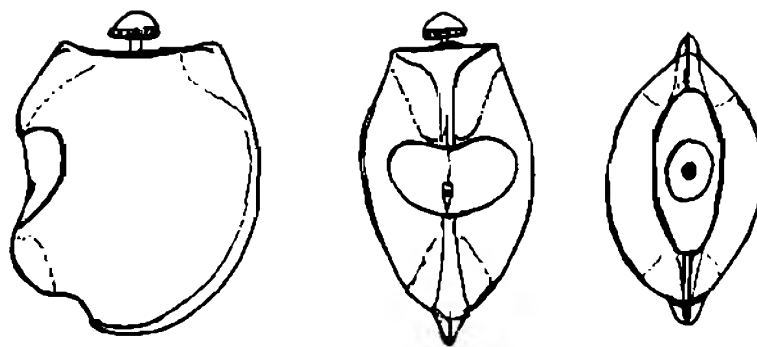


Figure 4. Egg: Lateral, dorsal and opercular views.

Nymphs (Figs. 5 & 6)

The newly hatched nymphs are relatively large when compared to those of other species. They have a body length of about 30mm and an overall length of 60mm. Their colour is green with brown mottling. There is a brown stripe running from the eyes along the mesonotum. The legs are banded in light and mid brown. As they grow they change in colour to a uniform brown or green. Young nymphs often curl their abdomens and may look as if they are deformed (Fig. 5). The nymphs, especially the larger ones, need a lot of space to shed their skins, but generally they grow very easily and I have had almost no losses.

Defence

Both adults and nymphs try to escape by falling or walking away. The nymphs in particular lose legs very easily and you have to be very careful when handling them. When the adults are disturbed, and the disturbance continues, they will go into their "crazy" mode in which the legs are moved very fast and they try to kick with the hind legs, with the body arched. I have never seen a male opening his wings for any reason.

Foodplants

Bramble (*Rubus* sp.), several oaks (*Quercus* spp.), rose (*Rosa* sp.) and primecherry (*Prunus serrulata*) are eaten. Some will

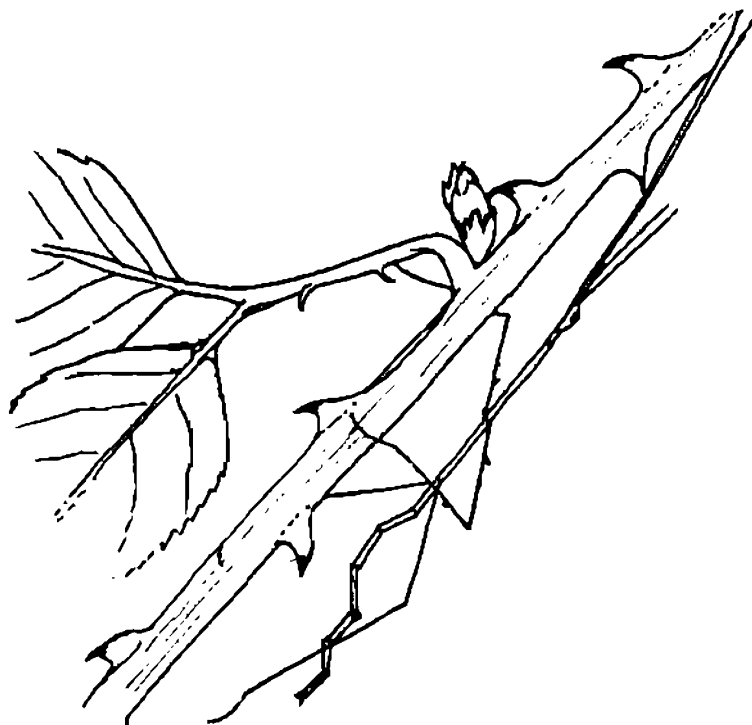


Figure 5. Half grown nymph in a typical resting position.



Figure 6. Newly hatched nymph.

also eat beech (*Fagus* sp.).

Rearing

This is a very nice species which is easy to culture but requires a lot of room owing to its great length. I kept mine in a large (180cm x 90cm x 45cm), well ventilated, *Plexi-glas* (acrylic) terrarium. I kept them damp (70-80%) and at temperatures of 22-26°C and they did very well in these conditions. Now I have also tried keeping

them in a well ventilated gauze cage at a very low humidity and have found that they also do very well in these circumstances. A high humidity is only needed for the final skin shed, without it they are not able to come out of the old skin and will lose legs. It is a good idea to keep the last instar nymphs in separate cages so that shedding nymphs are not disturbed by other nymphs climbing around the cage. When I started keeping this species I lost many large nymphs in this way. Again, be very careful with handling them because they shed legs easily, especially as nymphs.

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